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AUTHOR	Hull, Dale
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ABSTRACT

The primary purpose of this study was to determine whether maturity was a variable which contributes to academic success and thus should be regarded in the prediction of success and in the admission of students. A random smaple of 15 female students each was drawn from two groups of entering freshmen at the University of Missouri-Columbia. In the first group were those whose birthdates fell from 1924-1947, and in the second group were those with birthdates in 1950 to 1951. A grade index (GI) was computed by averaging the T scores for the School and College Ability Test (SCAT) total and high school ranks (HSR). A Pearson Product Moment correlation was used to test for correlations between the GI and GPA for each group and to test for correlations between predicted and actual GPA for each group. The results indicated that the mean of obtained GPA's for the older group was 2.67 as compared with 2.22 for the younger group, with near identical GI's. For the older group, the correlation between GPA and GI was significantly different from 0. This was not true for the younger women. The older group made .6 grade points greater than predicted; the younger group only .1 greater. (AF)

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MATURITY AS A VARIABLE IN PREDICTING ACADEMIC SUCCESS

by

Dale Hull, M.Ed.

A Research Study for the

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Prediction of achievement is still a difficult art at best. Evidence collected about achievement seems to have resulted in useful summaries of studies but few generalizations. (Baird, 1969)

Something is known about the characteristics of academically successful students and students who drop out but this has not helped to predict successfully academic performance. (Fishman, 1962; Lavin, 1965)

In the area of college performance little more has been learned than past academic achievement predicts future academic performance. Also reported is that prediction is more accurate for consistent than non-consistent students. (Holland & Lutz, 1967; Conklin & Ogston, 1968; Hopper, 1969; Baird, 1969; Lunneborg, 1969)

Other less precise predictors were found to be relevant potential and compentency scales, followed in importance by relevant life goals and self ratings. Students in a given area of college work were found to perceive themselves as having ability in that area and stated the area to be one of their most important goals in life. (Richards, Holland & Lutz, 1967)

Lavin (1965) found simple self ratings or statements of goals among the best predictors for science, leadership, art, music, religious science, grades and writing. In fact, Thresher (1969) predicts reliance on tests and test scores will be replaced by self scorings of tests and questionnaires and students estimating their own qualifications and selecting their own educational opportunities more intelligently.

These difficulties are functional when attempting to predict success for regular freshmen. Additional problems are encountered in prognosis of success for more mature students beginning college later than the regular freshman.

A study comparing performance of mature freshmen with four groups of regular freshmen on the College Qualifying Test had interesting results. The mature group ranged in ages from 24-50 and were defined as mature by their ages. This group had the lowest mean score of the five groups tested on the total test and on the four subtests. However, the mature group had the highest Fall GPA, second highest Spring GPA and highest cumulative GPA. Their success was accounted for by "motivation and prior experience (maturity)" which compensated for an average performance on a general educatational achievement test. (Perkins, 1968) Perkins considered those experiences between age 18 or 19 and the later age actually entering college and reported a delay in entering college may help by permitting young people to reassess their abilities and goals and increase motivation for doing well in college.

By contrast, Baron (1969) found age not to be a significant factor in differentiating between successful and unsuccessful students. Halfter (1962) feels age may be a poor index of expected performance; functional age may be more useful than chronological.

Hiltunen (1968) found mature women students lacked confidence and had fears about competing with younger people. Tests showed a gap between interests and ability and that their ability exceeded their level of aspiration. However, some other older students were found not to object to comparative evaluations with the young in a study by Halfter. (1962)

Part of the difficulty in predicting academic success is decision making concerning admittance or non-admittance of students. Fernandes (1967) found, in a study of variables involved in prediction of college success:

of 3919 students applying for admission,

- 1473 would be selected and would succeed
- 886 would be rejected but would have passed
- 1104 would be rejected and would have failed
- 424 would be selected and would have failed

In light of the last study, it seems all variables need to be called into consideration of acceptance into the academic environment to avoid rejection of those who could have succeeded and encouragement of those who will fail.

Prediction of academic success at University of Missouri-Columbia is done without regard to maturity as a variable. The mature student brings to the learning situation experiences since last formal learning not only different in quantity but in quality than those of the less mature learner. These experiences contribute to achievement in college work and should be considered.

Test scores of mature freshmen men and women on an achievement measure and their converted high school class ranks are combined and compared with scores and ranks of a norm group of students who have attended the University in recent years. Using grade point average as criterion, prediction is then made that the mature student will earn first semester grades similar to those earned by former students with similar scores. This norm group, however, is primarily younger students who entered the University directly from the academic setting of the high school. These students are not peers, maturity-wise, of older students for whom grades are being predicted.

The primary purpose of this study was to ascertain that maturity is a variable which contributes to academic success and should be regarded in prediction. An attempt was made to test whether the GPAs of mature women deviate from predicted norms based on the standard procedure now at UMC. Women were designated as a population rather than all mature freshmen because current prediction of grades from test scores is done using sex differential.

The stated hypothesis was that there was a significant difference in first semester GPAs of mature women students and younger female students who earn similar scores on the School and College Ability Test and high school ranks.

Methods

Subjects

Subjects were assigned to groups by age. The older group consisted of female students who were between the ages of 24 and 44 when entering as freshmen.

The second group was comprises of women students who were age 18 or 19 when entering as freshmen.

Procedure

A grade index which combines the SCAT total score and high school rank was used as the independent variable. The dependent, or criterion, variable was defined as GPA earned the first semester of college work. For the purpose of this study, maturity was operationally defined as age and functioned as an intervening variable.

1. The population: The population for this study consisted of all women freshmen students at UMC who took freshman placement tests and subsequently entered the university from Fall, 1965, through Fall, 1968.

2. Sampling procedure: Two lists of names were compiled for freshmen women entering from 1965 through 1968:

a. Those whose birthdates fell from 1924-1947.

b. Those whose birthdates fell in 1950 and 1951.

A random sample of 15 was drawn from each list. Pairs were matched within one percentile rank on SCAT total scores and converted high school ranks. Pairs took the entrance examination at the same testing. A limitation of the study is the small numbers considered.

3. Instrumentation: The instrument from which total scores were collected was the School and College Ability Test (SCAT). This test is widely used by colleges across the nation in attempting to ascertain the scholastic aptitudes of their students. It is administered to all entering freshmen at UMC as part of a comprehensive battery. The SCAT total score and converted high school rank were converted to normalized T scores and used as data for the study. The procedure of using the arithmetic mean of the two predictor scores is equivalent to using a multiple regression equation with weights of 1 for SCAT and HSR and 0 for the other predictors. A grade index (GI) was computed by averaging the T scores for SCAT total and HSR.

4. Data analysis: A Pearson Product Moment correlation was used to test for correlations between GI AND GPA for each group and to test for correlations between predicted and actual GPA for each group.

Means were found for GI and GPA for each group. A t test was used to test the significance of difference between these means for each group. A t test was also used to test the significance of the difference of the correlation coefficients obtained between GI and GPA from 0.

A z test was run, converting the correlation coefficients found between GI and GPA to normalized r's, to test the significance of the difference between the two correlation coefficients.

Results

The mean of obtained GPAs for older women is 2.67 as compared with 2.22 for younger women with near-identical GIs. This is shown in Table 1, Column C. Matching within one percentile on GI should have provided an advantage to the younger group. Column B shows the GI mean for their scores is 46.433 as compared with 45.933 for the older group. However, even with the edge on GI, the younger group performed less well as evidenced by GPAs. The mature women had a higher mean GPA by .45 grade points.

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Insert Table 1 about here

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In Columns D and E, for older women, the correlation between GPA and GI is significantly different from 0. We cannot make that statement for younger women.

A significantly better GPA is obtained for older women (in 99.5 cases out of 100) than the GPA expected from predicting with a GI. Table 2 shows a predicted mean of 2.087 for the older group and a 2.656 mean for their actual GPAs.

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Insert Table 2 about here

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This difference between actual and predicted GPA, when tested by a one-tailed t test, is significant at the .005 confidence level. On the average, the older women in the study made .6 grade points greater than predicted.

The younger women in the study made a GPA, on the average, only .1 greater than predicted. The means of their predicted and actual GPAs are 2.12 and 2.22, respectively.

Discussion

Older women achieve significantly better GPAs than those expected as predicted by GI using the current tables at UMC. Their grade index has a significant correlation with GPA, however, but does not predict GPA using the current tables. Older women also earn higher grade averages than their younger pairs with similar scores on grade indexes. Prediction concerning academic success of mature women freshmen cannot accurately be made using current tables normed on the incoming students regardless of age. The tables, however, are fairly accurate for younger women students.

These findings support those reported by Halfter (1962) in which comparison of achievements of younger and older women refuted Thornkike's theroy of dis-use. She found mental deterioration to be differential, with vocabulary, general information and verbal comprehension holding constant or improving with age. A general deterioration with age cannot be indiscriminately used in predicting academic success for older women. The older women in the Halfter study gave a better-than-average mean total performance and superior total performance in course grades over younger women. She suggests some factor in mental functioning may be resistant to aging or be late in maturing. Could this be the more intense desire to manipulate the environment found by Doty (1966)?

Doty found mature women more interested in manipulating the environment to meet their needs than younger women. This could

mean that older women are highly motivated toward academic success and can, therefore, manipulate by earning higher GPAs than their grade index would predict. The GI earned by test taking would be harder to manipulate than actual classwork.

The studies of Perkins (1968) and Halfter (1962) seem to find some support in this study. As with Perkins, the mature group made a higher GPA than expected and higher GPA than young counterparts. Halfter's subjects did not seem to mind competing with younger women. There is no evidence that competition adversely affected the older group in this study as those women in the study by Hiltunen (1968).

Conclusion

The predictor of academic success used presently at UMC for older women entering as freshmen is not accurate. Other variables seem to be operating which are not taken into consideration. One of these variables is indicated to be maturity, defined as age, which includes the enrichment of those experiences since last formal study. A separate predictor is suggested to be devised for use with older women freshmen students in assessing their possible academic success. This predictor may accurately use grade index in predicting but not the current tables.

Table 1 MEANS OF GRADE INDEXES AND GRADE POINT AVERAGES AND THEIR CORRELATIONS AND SIGNIFICANCE OF THOSE CORRELATIONS

	N	MEAN GI	MEAN GPA	CORRELATION OF GI TO GPA	t TEST OF SIGNIFICANCE OF r FROM 0
Older	15	45.933	2.656	.5630*	2.46*
Younger	15	46.433	2.226	.3944	1.548

* significant at .05 level, 1 tail test

Table 2 COMPARISON OF MEANS OF ACTUAL AND PREDICTED GRADE POINT AVERAGED

	MEAN GPA ACTUAL	MEAN GPA PREDICTED	t SIGNIFICANCE OF PREDICTED GPA TO ACTUAL	r ACTUAL AND PREDICTED GPA
Older	2.656	2.087	3.04**	.5571
Younger	2.226	2.122	.819	.3908

** significant at .005 level, 1 tail test

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